November 16, 2009

Rear Admiral (ret.) James Arden Barnett, Jr., Chief
Public Safety and Homeland Security Bureau
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

RE: Reply Comments of King County, Washington on Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks

PS Docket No. 06-229, DA 09-1819

Dear Chief Barnett:

We are pleased to submit the attached public comments on the thirteen waiver petitions filed by entities seeking authority to deploy public safety broadband systems on a local or regional basis in the 10 megahertz of 700 MHz public safety broadband spectrum (763-768/793-798 MHz) currently licensed to the Public Safety Spectrum Trust (PSST). We also intend these comments to apply both to the Commission?s decisions on these petitions and on similar future requests. This region will, most likely, file a petition for a waiver for the spectrum we need to avoid future known problems with our public safety communications systems.

The Commission has received many spectrum waiver requests in the past. It has wisely granted such requests when the grant enables the repair or upgrade of a wireless emergency public safety radio system and the requested use would not significantly harm another spectrum user. These are the correct criteria to apply to requests and we encourage the Commission to continue applying them.

Some observers are encouraging the Commission to place additional conditions on waivers hoping that this will result in nation-wide, wireless public safety interoperability. This would be unwise. The Commission?s first concern regarding its waiver decisions should be their impact on local and regional wireless public safety operability. Even if nation-wide, wireless public safety interoperability is a desirable and achievable goal, the Commission must not focus on that goal until local and regional wireless operability is first achieved. We are not near that point.

The County?s Comments are strongly supported by others in our state. I have attached letters of support from other regional partners.

Thank you for this opportunity to comment on this important matter.

Sincerely,

Kurt Triplett Susan Rahr

Kurt Triplett Susan Rahr
King County Executive King County Sheriff

Enclosures: Comments of King County, Washington

cc: Christine Gregoire, Governor, State of Washington
David Martinez, Chief Information Officer

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
)
PETITIONS FOR WAIVER TO DEPLOY) PS Docket No. 06-229
700 MHZ PUBLIC SAFETY)
BROADBAND NETWORKS)

REPLY COMMENTS OF KING COUNTY, WASHINGTON

KING COUNTY, WASHINGTON

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V. The Commission should not require waiver applicants to implement LTE or any other technology as a condition of granting a waiver.

A. Requiring waiver applicants to implement LTE or any other technology as a condition of receiving a waiver is premature.

B. Requiring waiver applicants to implement a specific technology as a condition of receiving a waiver would have the same effect as establishing a mandatory technology. If the Commission is going to establish a mandatory public safety technology it should do so in a rulemaking proceeding rather than in a waiver comment proceeding.

C. The communities where the public safety communications is occurring are best positioned to decide what technologies and solutions most closely meet their needs and budget.

VI. Summary of Comments.

I. King, Pierce, and Snohomish Counties (Region) in Washington
State have a strong interest in this proceeding. We lack sufficient spectrum to address known future problems with our wireless emergency public safety communications systems (Systems), and

anticipate jointly filing a waiver request similar to those at issue in this proceeding soon.

The local emergency public safety communications systems in Snohomish County, King County, and Pierce County, Washington, UASI Seattle Region 43 (Region), will experience significant future problems because the technology used in almost all of these systems population growth and dispersion, and other factors. If not addressed soon, these problems will lead to significant system degradation and an increased risk of harm to the public and responders.

Public safety responders in the Region frequently engage in joint operations, mutual aid, and other activities that bring them into neighboring jurisdictions in an adjacent county. Integrated, interoperable communications is an essential tool for performing these activities efficiently and safely. Responders do not have a unified Regional public safety network that enables seamless communication throughout the entire area, however.

Aware of these problems, King County hired a Government Relations Officer to coordinate planning for the next generation network in January 2008. The County Executive and Mayor of Seattle also sent a joint letter to many of the key elected officials in the counties immediately to the north and south inviting them to discuss this planning effort.

These officials formed the Radio Executive Policy Committee (REPC) consisting of elected and senior appointed officials in July 2008. The REPC is charged with jointly exploring and recommending policies for the planning, deployment, operation, governance, and funding of the Region?s next generation emergency public safety communications network (Network).

The REPC formed three subcommittees, made up of approximately 130 system users and managers from 55 agencies, to advise it on known problems with the Region?s current systems and requirements for any new or upgraded Network. These subcommittees met seven times and developed the requested material.

The Region lacks sufficient spectrum to build a new Network or significantly upgrade its current systems, however. It has significant public safety spectrum needs with a population of 3,386,200, and an area of 6,013 square miles. All three counties have large urban and suburban areas, six of the State?s ten largest cities are located within the Region, but there are also significant farming and recreational/forest preserve areas. The land in all three counties goes from sea level, Puget Sound, on the west to the crest of the Cascade Mountain Range on the east. Mount Rainier, at 14,411 feet (4,392 meters), is the highest point in the Region and a significant barrier to communications.

The Region is prone to natural disasters. More than 1,000 earthquakes occur in Washington each year although significant damage is rare. There are two active volcanoes either within, or nearby,

impacting the region. Many man-made conditions also impact the Region?s spectrum needs. For example, King County is currently engaged in extensive flood preparation because of recently discovered defects with a local dam. There are several major military bases in the Region and the Region is also home to a major defense contractor, the Boeing Company. Harborview Hospital, located in Seattle, is the only Level I adult and pediatric trauma center and regional burn center in Washington, Alaska, Montana and Idaho. Most of these are described in the Washington Statewide Communications Interoperability Plan.

As in all major metropolitan areas, there are also state and federal government networks operating in the Region. The local government networks must operate so as to not interfere with and to sometimes interoperate with these networks and each other.

Despite this high level of spectrum need, the Region has less spectrum available for public safety use than do most other areas of the country. This is primarily due to the Region?s proximity to Canada. The northern border of Snohomish County is approximately 32 miles from the Canadian border. Line A cuts through the Region, functionally decreasing the available spectrum above the line by one-half. 70% of the population in the Region lives above Line A . The Region is one of four standard metropolitan areas (SMAs) in the top 25 SMAs so impacted.

There are other factors as well. Critical provisions of the Canada/US 700 MHz Band Plan remain to be resolved. The Region also has no UHF ?T-Band? allocations, and 800 MHz rebanding planning has just begun in this Wave 4 area.

The result is that the Region has significantly less public safety spectrum than it needs, less spectrum than many other areas of the country, and no contiguous block of spectrum for a Regional Network. As a consultant recently concluded, the Region?s ?environment ? will make spectrum availability the greatest single technical challenge facing the [Regional] project.?

II. King County intends its comments to apply to the thirteen
waiver petitions involved in this proceeding and to similar future petitions.

King County intends its comments apply to both current and future waiver petitions. We believe any waiver request filed, including any waiver filed to benefit part or the entire Region, should also be judged in accordance with these comments. The County anticipates that the standards for granting waivers may change when the relevant underlying issues are resolved.

Resolution means different things for different issues. For example, as we will discuss in more detail below, no organization should be required to implement a specific technology until such time as the Commission adopts such a requirement and its decision is final in court. Local governments cannot

afford to begin constructing a public safety communications system using one technology now only to be required to rebuild using another technology later.

III. The Commission?s first responsibility regarding Systems and spectrum is to insure that these Systems have sufficient spectrum to meet local/regional needs.

A. Local/regional voice communication is the most critical wireless public safety communication service. The Commission?s public safety spectrum policy decisions must reflect this fact.

One of the Commission?s first responsibility regarding Wireless Emergency Public Safety Communications systems and spectrum is to insure that these systems have sufficient spectrum to meet local needs. At least ninety-nine percent (99%) of public safety communications is local/regional. Massive incidents, where responders come in from throughout the United States and could potentially benefit from a nation-wide public safety communications standard, are fortunately rare. Thus, the Commission?s spectrum goals should first focus on local/regional public safety wireless communications needs.

While incidents such as September 11th and Hurricane Katrina cause massive damage and heartache, they are fortunately rare. Day-to-day public safety communications is dominated by local communications. The definition of local/regional communication for this purpose must be defined on a case-by-case basis but is reflected in mutual aid agreements, UASI Planning Areas, and joint operations. This is the most crucial public safety communication.

Voice is the most important type of public safety communication. While data communication is helpful for filing reports, getting maps and floor plans, accessing records, and other uses, voice communication is primary when need to coordinate incident responses and participate in joint emergency and recovery operations.

The most important factor for a wireless emergency public safety communications network is whether it reliably serves those areas where responders must respond. As a consultant recently noted, ??[C]overage is king? ? no technology works if there isn?t sufficient radio signal to deliver it.? The FCC recognized this in a recent decision when it held that one of the purposes of the Commission?s rules is ?to ensure that adequate spectrum is available for each service category (i.e., Public Safety and Industrial/Business)?.?

System coverage is an especially important issue in this Region. For example, in King County some rural areas flood nearly every year. The County also participates in an average of ten search and rescue missions a month typically in very low population density recreational areas. Forest fires also occur in these areas. Any wireless emergency public safety communications network that fails to

serve these areas is critically deficient. Our current network does not serve many of these areas.

The usefulness of our networks would also be enhanced with greater interoperability. Greater regional interoperability could result in better roaming and incident coordination; it may result in spectrum and other efficiencies as well. That is why we have chosen to work together, as a region, on our next generation network.

But the lack of national interoperability has had little or no impact here. It does not make our networks critically dangerous for our residents or responders. However, the inability to upgrade or rebuild our systems to address known problems because we lack the necessary spectrum could have that effect. The uncertain benefits of a nationwide, interoperable wireless public safety broadband network do not justify denying local jurisdictions the spectrum needed to adequately protect their residents and responders.

Further, we believe that local jurisdictions, working as a region, are best positioned to determine what solutions best meet their wireless communications needs at a price they can afford. In some instances this will be a partnership with a commercial vendor whereby the vendor provides service, extends coverage, or otherwise improves its system; in other instances it will not. That decision should be left for local officials to decide.

The Commission?s decisions on these waiver applications must be based primarily on the waivers? impacts on local/regional wireless public safety communication. Only then should the Commission begin to consider the impact of these decisions on nation-wide interoperability.

B. The Commission has repeatedly recognized that granting spectrum waivers to enable System owners to rapidly upgrade or repair of wireless emergency public safety communication systems is in the Public Interest absent some strong countervailing harm.

The Commission has repeatedly decided that waiving its spectrum rules to enable improvements to local public safety networks is in the public interest. For example, the Commission found that a ?waiver would serve the public interest by improving [the applicant?s] ability to communicate and interoperate with public safety particularly in times of emergency...? The Commission similarly found in that granting a waiver request based, in part, on a finding that public harm may resultant from the requester?s inability to deploy a system to correct existing problems was in the public interest.

This Region faces a similar situation: Public harm is likely to result if we are unable to deploy a system to correct our systems? problems for lack of sufficient spectrum. As noted above, emergency communication agencies in the Region must begin work now if we are to avoid future problems leading to network service degradation. Most of the Region?s systems use Motorola v. 4.1 trunking

control equipment and software. Motorola has ceased developing new software for v.4.1 controllers. It will stop selling new consoles and equipment to increase system?s capacity this year and will totally withdraw support for v. 4.1 equipment over a period of years. The early part of this process has begun and all support will end by January 1, 2019.

C. Denying waivers while the country resolves important spectrum and broadband issues will increase the risk of harm to the public and responders and is contrary to the Public Interest.

Requiring the jurisdictions that have requested waivers to wait for all the public policy issues raised by these requests to be decided would halt the improvement work on many of these systems. During this period some of these systems will deteriorate significantly increasing the risk of harm to the public and to responders. Public policy must always evolve to meet changed conditions; some system problems cannot wait for that evolution, however.

It might make sense to deny the waiver requests and make communities wait to get adequate spectrum to upgrade their systems if there was a very strong benefit from doing so; there is not. There is no public benefit that offsets the increased risk of harm caused by delaying system improvements.

The US faces several important, inter-related public policy issues impacting public safety communications including the 700 MHz public safety spectrum, the D Block spectrum, nation-wide spectrum policy, the National Broadband Plan , network funding, potential public safety radio standards, and other matters. Despite the Commission?s best efforts, the country is still several years away from a final resolution of these issues. Congress will be involved in some of these issues; others the Commission will be left to address on its own. Given the importance of these issues many of these matters will likely face a court challenge. And even when those challenges are finalized, additional time will be needed to see whether the market responds to the rules in the desired way. Thus, we are probably several years away from finalization of many of these issues.

This Region can?t wait to correct our system problems while these public policy issues are resolved. Approximately 130 people in three subcommittees of the REPC from the Region spent many hours evaluating the current and predicted status of our wireless emergency public safety communications networks, and produced a detailed report (attached as Appendix A). They concluded, in part:

The public safety radio networks used by emergency workers in the Central Puget Sound region ? face significant changes and challenges in the near future. These challenges, if not met, will degrade service and will result in increased risks to the public and our first responders?.

[W]e face significant service degradation because of age, technical obsolescence, wear, and the

planned withdrawal of vendor support. Because it takes six to ten years to complete a project of this size, we must act soon to address this upcoming degradation. If we don?t, the result will be service outages and interruptions leading to delays in response times; greater difficulty in incident coordination; and increased danger to our police officers, fire fighters, paramedics, and other first responders?.

Some of the disparate systems within the Region will [also] require significant upgrades or replacement to meet federal regulatory requirements, to replace obsolete technology, to accommodate population shifts, and to compensate for increased metropolitan building density. Current systems have demonstrated a lack of capacity for large scale events involving natural disasters or critical incident responses.

Many of the applicants? systems will require major actions such as upgrades or rebuilds. The choice for the Commission, then, is whether to grant waivers now, thereby empowering applicants to continue moving ahead with their improvements or to make applicants wait to begin system improvements while it produces a Plan, while Congress adopts the Plan, while the courts review the plan, and while the market responds to the Plan, or not.

At the same time, the FCC and Congress have substantial work ahead including the national broadband plan, spectrum planning, and resolution of D Block usage. Waiver applicants should not be required to wait until this work is completed before they can address known risks.

D. Different geographic areas have differing public safety communication needs and a range of resources available to address them. The Commission?s policies must reflect these differences.

The needs of system users must drive the systems they build. The communications needs of public safety responders and commercial wireless providers are the same in some instances, but differ in others. And the communications needs of public safety responders in one geographic area may differ from those in another.

One difference between commercial and public safety requirements in this Region is public safety must have continuous system availability, especially in times of widespread emergencies, while commercial providers balance uptime and cost. This Region is prone to earthquakes. Public safety?s communication needs increase immediately after such an event. After our most recent major earthquake some of the local commercial carriers? systems went down, but government owned and operated systems did not.

Another difference between commercial providers? and emergency responders? needs occurs in rural areas. This Region has major metropolitan areas but all three counties also have many square

miles consisting almost exclusively of forests, foothills, and mountains. Responders regularly serve these areas to conduct searches and rescues, put out fires, and close down methamphetamine laboratories. Even basic commercial voice services are usually unavailable in these areas, however, because a commercial carrier has little financial incentive to make them available. This will likely to continue to be true for LTE and WiMax.

Public safety needs differ even within a county. Not only do we have urban and rural areas, we also have major topographic challenges. For example, all three counties include both property located at sea level and mountain ranges along their eastern borders. Pierce County is home to Mount Rainier with a height of 14,411 feet.

The FCC?s rules must recognize these and other important differences. Local communities must have the power to act in their best interest. Rules should not prevent local communities from meeting their public safety communication needs in the hope of fostering nation-wide interoperability.

As the Commission recently noted "the most significant obstacle to constructing a public safety network [is] the limited availability of public funding." Again, this varies from area to area. Some urban areas are doing well; some not so well. The same is true for suburban and rural areas. The agencies applying for the waivers all believe they can fund system rebuilds, upgrades, or enhancements.

Those areas with the greatest wealth, population, and density are best positioned to build their own systems but also to have access to significant private sector services. King County includes Seattle and Redmond, the home of Microsoft. Multiple wireless carriers providing cutting-edge services serve these cities. There is both very demanding customers and competition among carriers. Partnering with a private carrier for voice and data services is a real option here.

Local governments cannot bargain effectively with carriers if governments are barred from building their own communication systems. Carriers can charge monopoly or oligopoly prices unless their prices are controlled. Even then, carriers have little reason to negotiate other system characteristics benefiting local responders unless the carrier itself also benefits or is compensated for cost increases.

IV. The criteria the Commission currently uses to evaluate requests for waivers of its public safety spectrum rules serve the needs of the public, commercial business, and public safety communities, and should be retained without modification.

No one has argued that the criteria the Commission currently uses to evaluate these waiver requests are defective. Nor has there been criticism that the Commission has wrongly applied these criteria.

Rather, some interests have proposed adding additional criteria that may foster other proposed goals. Given the harm resulting from denying valid waiver requests, an additional burden should be placed on applicants only if the likely benefit of the addition significantly outweighs the harm of potentially more denials.

In the Commission?s Public Notice it quoted the PSST as stating that ?interoperability with the shared wireless broadband network to be developed in the public safety broadband spectrum should be ?a condition of any relief provided to Petitioners? and that ?the FCC ? with input from the PSST ? should provide specific guidance as to the technological standards and minimum system requirements that must be satisfied.? This requirement is impractical because it would cause upgrades and rebuilds to cease.

This requirement is uncertain. The term interoperability is not defined making the nature and scope of this proposed requirement unclear. There is no way to estimate the dollar impact on a system owner.

It would seem the PSST is anticipating the Commission will, at some undetermined future time, adopt and require all public safety wireless emergency radio systems to use a specified technology. These systems are built to last between 10 and 20 years. The risk is that a community will spend millions to build or upgrade its network using Technology A only to later be required to rebuild its system spending millions more using the now established standard, Technology B. No government should be forced into such a position.

No local government can reasonably commit to build to an unspecified technology at any point in this 20-year period. Regardless of whether mandatory nation-wide wireless public safety communication standards are a good idea, such a requirement is unreasonable. System owners cannot reasonably make such an open-ended commitment. Therefore, system owners must choose to either: decline waivers with this language and forego needed upgrades; or accept the language with the hope it will never be enforced. It is difficult to imagine that the Commission wants to put that burden and risk to system owners.

Some agencies would argue that a community can avoid this problem if their new system implements the LTE technology. For the reasons discussion in the next Section, this is incorrect.

V. The Commission should not require waiver applicants to implement LTE or any other technology as a condition of granting a waiver.

A. Requiring waiver applicants to implement LTE or any other technology as a condition of receiving a waiver is premature.

Voice is the most critical wireless public safety communications service. Data, while increasingly used, is clearly of secondary importance in most emergencies. The commercial wireless industry has not yet settled on its next generation voice technology.

This failure to adopt a voice standard yet is extremely important in this spectrum-constrained Region. Our responders desire data as well as voice services but want both services delivered to a single integrated device.

Commercial wireless services are a very large market. According to the Telecommunications Industry Association (TIA), 2008 wireless industry revenue totaled $210 billion, up 8.4 percent from 2007. Public safety communications was a small fraction of that revenue. The ?[t]hree million public safety workers represent only 1.2 percent of the total cellular market. In comparison, 12 to 14 year olds, represent about 10 percent of the total subscriber market.? Clearly, if the public safety sector is going to partner with commercial wireless providers, public safety will need to use the technologies preferred by the commercial wireless providers absent massive Federal government subsidies or comprehensive regulation.

The commercial wireless industry has not chosen its 4G voice technology yet. WirelessWeek pointed out in September 2009 that ?as the excitement for LTE begins to build, scratching beneath the surface reveals many nontrivial challenges that still need to be overcome for successful network deployment ? and more importantly, for broad consumer adoption.? Especially important, key decisions regarding voice communication over LTE remain. As another recent article noted that ?The industry has yet to come to a consensus on voice over LTE technology, with IMS, VoLGA and CS fallback vying for top spot.?

At least one other step needs to occur before the Commission should consider making any standard mandatory for public safety: products from multiple vendors must be available, and they must have been tested and found to be fully interoperable under actual use circumstances. Again, we are not yet at this point.

B. Requiring waiver applicants to implement a specific technology as a condition of receiving a waiver would have the same effect as establishing a mandatory technology. If the Commission is going to establish a mandatory public safety technology it should do so in a rulemaking proceeding rather than in a waiver comment proceeding.

The decision to establish a mandatory wireless public safety communications technology will have far reaching impacts on the public safety community. The Commission will want to receive the widest possible range of stakeholder comments on this topic if it undertakes such a task. The Commission is more likely to get the broadest range of comments in a targeted rulemaking proceeding.

The current matter focuses on spectrum availability and use. Many agencies deeply interested in the establishment of a mandatory wireless public safety communications technology have sufficient spectrum today and so are not interested in spectrum issues and will not be making comments in this matter. The Commission is more likely to see the range of stakeholder comments it wants if it uses a targeted rulemaking proceeding.

C. The communities where the public safety communications is occurring are best positioned to decide what technologies and solutions most closely meet their needs and budgets.

As noted above, the vast majority of public safety communications is local and regional voice communication. It makes sense then that the people using those communications systems every day and their elected decision-makers are best positioned to decide what technologies and solutions most closely meet their needs at costs they can afford. The federal government should not remove that decision from local government without a compelling reason. Here, no such compelling reason has been articulated.

VI. Summary of Comments.

Thirteen communities have applied for waivers so they can upgrade their wireless emergency public safety communications systems. The Commission should anticipate receiving an increasing number of waiver requests from System owners wanting to upgrade or repair their systems. These requests will be driven primarily by Motorola?s withdrawing support for its v 4.1 systems and the desire of System users to use broadband services. Like many communities, the Systems in this Region will be unable to avoid known, significant future problems with our Systems and meet user-defined needs unless we have more spectrum than is currently available to us.

Waiver requests are not new and the reasons for the requests have not changed. Recognizing the crucial nature of these systems, the Commission has repeatedly granted similar waiver requests, subject to certain limited conditions, finding that avoiding system deterioration and adding key system functionality are both in the Public Interest.

What has changed is the increased demand for spectrum in both the commercial and public safety sectors. In addition, large-scale tragedies, such as Hurricane Katrina and September 11th have highlighted public safety communications interoperability problems.

Some commentators would have the Commission impose additional conditions on waivers hoping that this would lead to a nation-wide interoperable public safety network. Such a policy is unwise.

No community should risk agreeing to comply with such an ill-defined requirement. Until an actual standard is proposed, it is impossible communities to judge it effectiveness in meeting their needs or its costs. Communities could spend substantial funds upgrading their systems now, only to be required to implement another technology during the useful life of the upgraded system. In sum, a significant number of otherwise valid waiver requests would be denied to the detriment of the public and its responders.

The Commission should also be cautious in adopting any mandatory nation-wide technology requirement. The vast majority of public safety communications originates and terminates in a single locality or region, and these users are best positioned to decide what meets their needs at a cost they can afford.

What?s more, the criteria the Commission has used in evaluating these requests have served the public, commercial, and public safety community well. We encourage the Commission to continue to use these criteria without modification.

We urge the Commission to continue evaluating waiver requests using the criteria it has most recently used.

Thank you.

Appendix A

NEXT GENERATION WIRELESS PUBLIC SAFETY NETWORK
PROBLEM STATEMENT

EXECUTIVE SUMMARY

The public safety radio networks used by emergency workers in the Central Puget Sound region of King, Snohomish and Pierce Counties face significant changes and challenges in the near future. These challenges, if not met, will degrade service and will result in increased risks to the public and our first responders.

These networks dispatch police, fire, and emergency medical services. They enable first responders at an incident to coordinate their efforts; provide an officer who has just made a traffic stop with important information about the driver; and are used by responders to call for help when they need assistance. The coordination of our networks in our three-county Region has previously been

identified as a national model.

Now, however, we face significant service degradation because of age, technical obsolescence, wear, and the planned withdrawal of vendor support. Because it takes six to ten years to complete a project of this size, we must act soon to address this upcoming degradation. If we don?t, the result will be service outages and interruptions leading to delays in response times; greater difficulty in incident coordination; and increased danger to our police officers, fire fighters, paramedics, and other first responders.

Many agencies in Pierce, Snohomish, and King Counties (Region) frequently provide mutual assistance and engage in joint operations. To do this work, first responders must communicate and coordinate using these networks, no matter where the responders are physically located. Currently there is limited interoperability between all first responders within the Region due to disparate radio systems.

Some of the disparate systems within the Region will require significant upgrades or replacement to meet federal regulatory requirements, to replace obsolete technology, to accommodate population shifts, and to compensate for increased metropolitan building density. Current systems have demonstrated a lack of capacity for large scale events involving natural disasters or critical incident responses.

Public safety communication is no longer limited to voice communication. Police, Fire and EMS first responders need to receive a range of information in the field from their Dispatch Centers, their departments from other field units, or data bases. This information may be in the form of photographs, streaming video, reports, building plans, fingerprints or voice files. Likewise, they need to transmit similar information from their vehicles back to these locations. It is essential that our next generation network to carry these data for efficient service to the public and the safety of responders. A dedicated Public Safety Data Network will also increase the likelihood of data system availability and prioritization during major events which is not available through commercial data providers today.

Our Region has experienced a multitude of criminal incidents and enterprises which cross jurisdictional lines. Public Safety Answering Points (PSAPs) and dispatch centers which answer the 911 calls and collect information for dispatching are a key component in our interoperability response capabilities. Common information platforms such as Computer Aided Dispatch (CAD) and Record Management Systems (RMS) interconnectivity will enable information to flow freely and immediately across jurisdictional boundaries.

DETAILED PROBLEM STATEMENT

Introduction

Many agencies in Pierce, Snohomish, and King Counties (Region) frequently provide mutual assistance and engage in joint operations. To do this work, first responders must communicate and coordinate using the wireless systems where they are at the time. A coordinated and cooperatively designed system will increase our ability to quickly and efficiently respond to citizens? needs during any natural or manmade events in our three-county region.

The radio systems in the Region have one or more of the following problems:
? The equipment supplier for most of the networks in the Region has said it will stop repairing equipment and stop selling new equipment in the next few years.
o Systems may face parts shortages, increasing the risk of service degradation.
o Parts shortages may also limit agencies ability to add services.
? The system has insufficient capacity during a wide-scale emergency, such as the Nisqually earthquake.
? The system has insufficient capacity to support new services that would enable responders and other users to work more effectively and safely.
? The system does not adequately serve all of the populated areas in the three counties or projected growth areas.
? The system is old and maintenance costs are rising as parts increasingly require repair and replacement.
? Service often stops when a radio user enters a high- or mid-rise building.

As we move to the Next Generation Network, we can do so in phases or do the work throughout the Region at the same time. We must be sure that as our systems are upgraded or replaced, we maintain and improve interoperability (the ability to communicate and deliver needed services) among those agencies that are working together.

The Need to Improve Capacity

As the radio systems in the three-county area are upgraded or replaced, in-part or in-whole, it is crucial that as we upgrade/replace our systems, we maintain and improve the ability to communicate and deliver needed services across the region especially during major disasters. Current systems cannot guarantee that first responders can communicate at these times.

When there is a major disaster or event, many public radio system users reach for their radios or cell

phones, overloading the system. For example, after the Nisqually earthquake, many King County 800 MHz radio users tried unsuccessfully to get on the radio system only to get a busy signal.

The problem was worse with many commercial services. Many responders use commercial cell phone services to provide part of their communication support. After the last earthquake, so many cell phone users tried to use their phones that these systems were even more overwhelmed than the radio systems. This reduced the effectiveness of first responders to coordinate emergency responses.

In addition, many first responders did not have access to wireless data networks that were available and unburdened during the Nisqually quake.

Finally, commercial providers do not provide the coverage and up-time consistently that first responders need to ensure communications are available during normal operating periods as well as major emergencies.

These problems have two sources and any upgrade/rebuild must address these problems:

? Current systems lack the capacity required for peak use times;
? There is no economic or regulatory incentive for commercial wireless providers to improve coverage and availability for first responders.

Systems should be rebuilt or upgraded so that for the first five years after the rebuild/upgrade, systems will meet or exceed the following measurements: during the normal busy hour each day, no more than one percent of calls attempted generate a busy tone and the average busy length will be less than one second. This means that under normal conditions, during the normal busy hour each day there should not be any more than 1% busies and a wait no longer than one second to get a permit-to-talk tone. Systems should be designed so that they can be further upgraded to meet these measurements throughout the systems? useful lives.

The End of Network Life

Snohomish and King Counties, the Port of Seattle and the cities of Tacoma/Puyallup have public safety trunked networks built by the same vendor using the same 1980s technology. These networks work reliably now but the technology is becoming obsolete. Not surprisingly, our vendor has indicated that it will stop manufacturing new parts and performing repairs on the used parts in these networks over the next several years. The risks that our networks will degrade due to component failure are rising significantly and we face increasing repair and maintenance costs. We need to

begin the process to build the Next Generation Network now if we are to avoid these risks.

The intended benefits of a Next Generation integrated network will be realized, however, only if the equipment advances are accompanied by consistent, on-going, and timely training; there are few benefits from a system with improved services and functionality if the system?s users are unable to use those services and functions or are unaware that they exist.

Portions of the King County network are wearing out. Finished in 1997, parts in the network are increasingly failing and need repair or replacement. At the same time, the equipment manufacturer for most of the current radio systems in Pierce, Snohomish, and King Counties has told us it will stop selling and repairing the parts for our systems in the next few years. Absent a new system, we face an increased risk of system failure.

It takes many years to replace this type of network. When we built the King County network in the 1990?s, it took five years from the time funding was approved until the network was fully operational. The SERS Network took seven years from funding to completion. Thus, we need to begin this planning several years in advance of deployment.

Most of the Region?s systems use Motorola v. 4.1 controllers and other equipment. Motorola has ceased developing new software for v.4.1 controllers. It has told us it will stop selling new consoles, equipment needed to fill in the ?holes? in coverage, and other equipment and repairing used v 4.1 equipment over a period of years. The early part of this process has begun and all support will end by January 1, 2019.

Motorola?s move to the next generation of technology does not mean that any agency will be required to turn off its system at any specific date; rather, the ability to expand a system to fill in ?holes? or compensate for population growth decreases over time. Also, the availability of spare parts and repairs will lessen over time resulting in an increased risk of system degradation and higher repair costs. Parts will likely need to be obtained on the secondary market. Newer systems should require fewer repairs than older systems, but all v. 4.1 systems will be impacted to a considerable degree.

The VHF systems in use by Pierce County and many smaller fire districts also face Federal Communications Commission (FCC) requirements to move to narrowband operations by 2013. This will require upgrading these systems. This requirement will be an opportunity to improve our interoperability within the region by bringing those agencies and users to a common platform.

Interoperability is not just a local issue, but also a nationwide problem. The U.S. Department of Homeland Security recently released a National Emergency Communications Plan which sets targets

for emergency communications across multiple agencies and communities by 2010.

Geographical and In-Building Coverage

Several populated areas in the Region have little or no radio coverage, and the impact of this problem is likely to increase in all three counties as growth patterns change.

? To work safely and effectively, responders and other users need systems that enable them to easily communicate in all of the places they do their jobs. This is currently not possible. For example, the oldest system, the King County system, was built to cover the population centers in the County when it was designed in 1994; it was not designed to provide coverage in 100% of the County. The increase in high-rise buildings together with the increase and dispersal of population has resulted in an increase in the number of significant ?holes? in coverage. Similarly, there are ?holes? in the Pierce County system?s coverage. As our populations grow and shift, we can expect additional holes to develop throughout the Region, unless we act to prevent that from happening.

? It will become more difficult to fill these holes as the supply of the needed equipment lessens. Our equipment supplier has indicated that it will end selling the current generation or equipment used to add sites (and thus expand coverage) in 2009.

? Population growth will also drive the need for additional responders and dispatchers. Again, our equipment supplier has told us that it will stop selling dispatcher consoles for use with v. 4.1 systems by the end of 2009.

In accordance with the U.S. Government?s National Emergency Communications Policy our network should insure ?that responders can communicate:
? As needed, on demand, and as authorized
? At all levels of government
? Across all disciplines.?

There are places in the Region today where radio users may lose coverage when they enter high-rise buildings or basements to pursue a suspect, fight a fire, or aid a patient. Today?s system was not designed to provide such coverage but the next generation system can remedy this situation. This makes it difficult for users inside these areas to coordinate activities or call for assistance, and for incident commanders outside these areas and responders inside these areas to communicate.

Interconnection of Disparate Systems

Snohomish and King Counties, the Port of Seattle and the Cities of Tacoma/Puyallup have public safety radio networks using 800 MHz frequencies, built by the same vendor and using the same version of technology. But, other agencies critical to the public safety of the region use different frequency bands and technologies that do not work optimally with these systems.

In addition to the existing 800 MHz System upgrades already mentioned as needed, the existing VHF and other interconnected legacy multiband systems need to be upgraded and expanded within the time frame of the National Emergency Communications Plan (NECP).

VHF, UHF, paging, and low band systems are important for parks, major utilities, and similar users. For example, the current VHF interconnect system, called MARS, is a legacy system but no less vital for communications with VHF users, particularly state agencies. We need to have a plan to create a link between these systems and more major systems. In a new configuration, consideration should be given to adding a suite of VHF I/O channels including DNR common, REDNET, VTAC and OSCCR, and Search and Rescue, all analog.

The VHF systems in use by Pierce County and many smaller fire districts also face FCC requirements to move to narrowband operations by 2013. This will require upgrading these systems. This will be an opportunity to improve our interoperability within the region by bringing those agencies and users to a common platform.

We also need to consider interoperability with non-government systems. Several private businesses have radio systems where interconnection could be highly desirable including private ambulance companies, utilities such as Puget Sound Energy and telephone service providers, and Boeing.

Common Programming, Functions and Features

The existing systems enable users to communicate with other responders on the network when they travel to a new area, often with some difficulty, but do not allow them to also communicate with their home area. Radios are sometimes programmed differently by different jurisdictions although it is possible to program them the same way today. As a result, users are uncertain what channel to use when they travel to a new area. This would be remedied with the Next Generation System.

Ideally, the systems would operate as a single network for users wherever they travel in the Region where a signal is available. Users should be able to push-to-talk and easily communicate with anyone else on the system in the three-county area.

In the best of circumstances, users would retain all of their systems? features, such as user identification, emergency (EMR) buttons, busy signals, etc., when talking with responders from other agencies and jurisdictions. However, users must be able to talk with each other quickly and easily even if some of the secondary features are lost.

Initial, planning will include Pierce, Snohomish, and King Counties. The REPC and Subcommittees will develop their recommendations, however, so that additional jurisdictions may be added later, if they desire.

Services Other than Voice Radio

Our Next Generation systems must support important services they cannot currently support.

? Users are asking for new and enhanced services they believe will help them do their job more effectively and safely. Examples include the ability to transmit Amber Alert pictures and building plans to the field, and to encrypt sensitive communication to prevent its interception during transport.

We risk a potential decrease in the ability to communicate if we move to diverse technical platforms as we conduct these upgrades. Conversely, through a coordinated effort we can improve our interoperability, response to public safety needs, and safety for our first responders.

Features and functions could be added to upgraded/rebuilt systems enabling users to do their work more effectively and safely.

? The Next Generation 911 (NG911) system will have the ability to receive Amber Alert and suspect photographs, videos, vehicle collision notifications, medical reports, and other information, and could then distribute it to responders in the field over this network.
? Police units need to be able to send and receive information such as police reports, citation information, fingerprints, warrants, mug shots, photographs of missing persons and even streaming video. Tactical situations require the ability to access mapping information and government records and to be able to communicate with other entities in multi-jurisdictional incidents.
? Fire units need to be able to send and receive maps, hazardous material documentation, information on weather conditions to predict chemical plumes, and building and utility plans.
? Emergency Medical vehicles need to be able to send and receive patient records, and have real time access to relevant data bases.
? Benefits may also result from connecting other systems and/or agencies together. Automatic vehicle location systems and paging would enable the better deployment of personnel and equipment. The encryption of operational communications would decrease the likelihood that those

communications would be intercepted by perpetrators and others.

Many of these features and functions can be deployed only on upgraded/rebuilt systems with data capabilities. Wireless data services provided through a commercial wireless card often do not provide the needed security and dependability public safety requires.

Wireless data systems dedicated for public safety use are in place around the country. Snohomish County is currently involved in pilot testing (proof of concept) such a system. This technology is needed throughout Pierce, King and Snohomish Counties.

Efficiency Improvements

The Next Generation Network may result in efficiencies.

o A coordinated and cooperatively designed system which includes voice, data, Computer Aided Dispatch and other technologies will increase our ability to quickly and efficiently respond to citizens? needs during any natural or manmade events in our three-county Region.
o There are at least five radio systems in the Region. Operational efficiencies may result from doing the upgrades/rebuilds in a certain way and from the consolidation of certain tasks. It may be possible to reduce the number of system switches in a Regional system, for example.
o Quantity discounts might also be available if we purchase equipment or services as a Region rather than as individual systems.